UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,326	02/06/2004	Takuji Nomura	81846.0035	8530

26021 7590 07/12/2006

HOGAN & HARTSON L.L.P.
500 S. GRAND AVENUE
SUITE 1900
LOS ANGELES, CA 90071-2611

EXAMINER	
DIAMOND, ALAN D	

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/774,326	NOMURA ET AL.	
	Examiner	Art Unit	
	Alan Diamond	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,5,7,13-17 and 22-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,5,7,13-17 and 22-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Comments

1. The rejection of claims 4 and 13-16 under 35 USC 112, second paragraph, has been overcome by Applicant's amendment of the claims.

Suggested Claim Language

2. In claim 1, since the trough-side surface and the anti-trough-side surface each has a trough (see instant Figures 1 and 2), it is requested that the term "having a trough section" be inserted after the term "trough-side surface" at line 9 of claim 1, and after the word "surface" at line 10 of claim 1.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: reference sign 6a in Figure 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective

action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 1 is objected to because of the following informalities: In claim 1, at the second-to-last line, the hyphen between the words "trough" and "section" should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 13-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In each of claims 13 and 17, the "at least two rising parts" extending from "at least two sides of the main part" for the fastening strips is not supported by the originally filed disclosure (see the last three lines in each of claims 14 and 17). The originally filed disclosure does have support for two rising parts provided at longitudinal sides of the rectangular main part (see page 34, lines 11-21). However, such a limited disclosure is not sufficient support for the more broad language "at least two rising parts" and "at least two sides of the main part". The same applies to dependent claims 14-16

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 13-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 13 at line 11, and in claim 17 at line 10, the term "said fastening strips comprise" should be changed to "each fastening strip comprises" so as to clearly point out what is intended. The same applies to dependent claims 14-16.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2000-226908, herein referred to as JP '908.

With respect to claim 13, JP '908 teaches solar cell module tiles (1) that have already been laid on a roof (see Figure 6). Then, additional solar cell module tiles (1) are laid on the roof such that the eaves side of a solar cell module tile (1) to be laid is fastened to an upper portion of the ridge side of solar cell module tiles (1) that have already been laid (see Figures 6 and 8). As seen in Figure 1, the solar cell module (4) of a given solar cell module tile (1) is fastened to the eaves side of the solar cell module tiles (1) with fastening strips (8) (see also Figures 4 and 8). Alternatively, fastening strip

(38) can be used, as seen in Figures 12 and 13. Said fastening strips (8, 38) on the eaves side of the tile (1) are also fastened to the peripheral section (5) of tile body (2), which is in turn fastened to the ridge side of the tiles (1) that have already been laid (see Figures 6, 8, and 13). Thus, said fasting strips (8, 38), which read on the instant fastening strips, fasten the eaves side of a solar cell module (2) of a tile (1) to the ridge side of tiles (1) that have already been laid. As seen in Figure 12, fastening strips (38) comprise a rectangular main part and the instant at least two rising parts that extend from the main part. The fastening strips (8) can also have a rectangular part and multiple rising parts as seen in the embodiment of Figure 17(a). Fastening strips (8, 38) prevent solar cell modules (4) from being blow off (see paragraph 0045). As seen in Figure 8, the fasting strip of an upper solar cell module tile (1) is between a lower portion of the eaves side of said upper solar cell module tile (1) and the upper portion of the ridge side of an adjacent lower solar cell module tile (1). Said fastening strip (8, 38) of the upper solar cell module tile (1) clearly engages lower portion of the eaves side of said upper solar cell module tile (1) and engages the upper portion of said adjacent lower solar cell module tile (1), albeit indirectly by way of the peripheral section (5) of the upper solar cell module tile (1).

With respect to claim 14, the fastening strips (8, 38) of the solar cell module tile (1) to be laid is clearly engaged (by way of said peripheral section (5)) with the ridge side of the tile below it (see Figures 6 and 8). Said fastening strips (8, 38) are coupled to the eaves side of a module (4) which is part of a tile (1) that is laid on the upper edges of the tile below (see Figures 6 and 8).

With respect to claim 15, the fasteners (8, 38) have a height-adjusting screw (32, 32A) which clearly has a tip abutting on an upper surface of the solar cell module tile (1) (see Figures 10 and 13). As noted above, the engaging part is the tile body (2). However, since the fasteners (8, 38) penetrate the tile body (2) from above, they determine the height at the eaves side. In particular, in Figures 10 and 13, if the screw holding in the fastener (8, 38) is very tight, then the height at the eaves side as measured from the top of fastener (8, 38) will be lower than compared to the situation where the screw is not screwed as tightly.

With respect to claim 16, each solar cell module (4) clearly has a width that is an integral multiple with the width of each tile so that each solar cell module (4) can fit in a tile body (2) (see Figures 1, 2, and 6). As seen in Figure 6, the fastening strips are arranged at regular intervals in the widthwise direction.

With respect to claim 17, the fastening strips (9), which also prevent the solar cell modules (4) from being blown off, are at the ridge sides to the tiles (1) (see Figures 6 and 8). The fastening strips (9) are fastened to the ridge-side peripheral edge of the tile body (2), which in turn is coupled to the eaves side of the tile to be laid (see Figures 6 and 8). Thus, said fastening strips (9) couple the ridge side of a solar cell module (4) to the eaves side of a solar cell module tile to be laid. The fastening strips (9) have a securing part, i.e., the vertical part that projects into peripheral section (5) which in turn is secured to the roof via nail (12b) and a horizontal part that clearly engages and is coupled to the lower portion of the eaves side of and adjacent upper solar cell module tile (1) (see Figure 8). The fastening strip (9) in Figure 5 has a rectangular portion at

reference sign (31), and two rising portions, one being at reference sign (29) and another that rises to reference sign (36). In any event, fastener (8) can be used for fastener (9) when there is no level difference between the solar cell module and roofing tile base (see paragraph 0020),and thus, fastener (9) can have the structure in Figure 17(a). As noted above, the fastener of Figure 17(a) reads on the instant fastener.

Since JP '908 teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

11. Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 11-200561, herein referred to as JP '561.

With respect to claim 7, JP '561 teaches the laying of solar cell modules together with tiles (B) on the roof of a building (see Figure 11). As seen in Figure 1, 4, and 11, there is a separate waterproof member (7) placed between each solar cell module and one tile (B) which are laid adjacent in the direction of a gradient of the roof. As seen schematically in Figure 11, said waterproof member (7) has substantially the same height as the height of the tiles (B). As seen in JP '561's Figures 1, 4, and 11, the waterproof member (7) has a width narrower the tiles (B). The waterproof member (7) is a "rectangular box that opens at a lower portion thereof" to the extent that (7b) is one wall, (7D) is another wall, and (7E) is another wall, and (C) is in the opening of the box. The word "lower" is relative, and thus, when JP '561's Figures 4 and 11 are viewed upside down, the opening of waterproof member (7) is at a lower portion thereof. As seen in Figure 11, the waterproof member (7) has a trough section. This trough section renders waterproof a junction between the tile (B) to the right of the trough section and

the solar module (A) adjacent thereto because waterproof member (7) is waterproof. As seen in Figure 11, the waterproof member (7) overlaps one side of a solar cell module and tile.

Since JP '561 teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 1, 4, 5, 7, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11-200561, herein referred to as JP '561, in view of Ouchida et al, U.S. Patent 6,525,264.

With respect to claims 1 and 4, JP '561 teaches a solar cell module comprising photovoltaic cell (2); and a rectangular frame that encompasses the instant base member and comprises a ridge-side surface at section (1D) which projects downward at part (13D); an eaves-side surface at section (1C); a trough-side surface at section (13A) and an anti-trough-side surface at section(13B) (see Figures 1, 2, and 3). The trough-side surface at section (13A) has a protecting part (12A, 14A, 15A), extending along the ridge-side to the eaves-side of the roof and configured to overlap the trough section of an adjacent solar cell module (see Figures 3 and 7). Likewise, the anti-trough-side surface at section (13B) has a protecting part (12B, 14B), extending along the ridge-side

to the eaves-side of the roof and configured to overlap the trough section of an adjacent solar cell module (see Figures 3 and 7). Note that a solar cell module is a tile and thus, an adjacent solar cell module is also an adjacent tile. The photovoltaic cell (2) is mounted such that a lower surface of photovoltaic cell (2) is positioned above and is mounted to an upper surface of said rectangular frame (see Figure 2). For example reference sign (3B) in Figure 2 is an upper surface of the frame and the photovoltaic cell (2) is mounted such that a lower surface of photovoltaic cell (2) is positioned above and is mounted to said upper surface at (3B).

With respect to claim 5, a lower surface of, for example, the projecting part (12B) of the anti-trough-side contacts an upper edge of a rising wall (11A) of section (13A) which defines the trough section of the adjacent tile or module to seal a gap (see Figure 11).

With respect to claim 7, JP '561 teaches the laying of solar cell modules together with tiles (B) on the roof of a building (see Figure 11). As seen in Figure 1, 4, and 11, there is a separate waterproof member (7) placed between each solar cell module and one tile (B) which are laid adjacent in the direction of a gradient of the roof. As seen schematically in Figure 11, said waterproof member (7) has substantially the same height as the height of the tiles (B). As seen in JP '561's Figures 1, 4, and 11, the waterproof member (7) has a width narrower the tiles (B). The waterproof member (7) is a "rectangular box that opens at a lower portion thereof" to the extent that (7b) is one wall, (7D) is another wall, and (7E) is another wall, and (C) is in the opening of the box. The word "lower" is relative, and thus, when JP '561's Figures 4 and 11 are viewed

upside down, the opening of waterproof member (7) is at a lower portion thereof. As seen in Figure 11, the waterproof member (7) has a trough section. This trough section renders waterproof a junction between the tile (B) to the right of the trough section and the solar module (A) adjacent thereto because waterproof member (7) is waterproof. As seen in Figure 11, the waterproof member (7) overlaps one side of a solar cell module and tile.

With respect to claim 21, JP '561's rectangular frame, which encompasses the instant base, is a box that is bottomless, as well as topless.

JP '561 teaches the limitations of the instant claims other than the difference which is discussed below.

JP '561 does not specifically teach the structure of its photovoltaic cell (2), and, as such, does not specifically teach the combination of a base member and support member recited in instant independent claim 1.

Ouchida et al teaches a photovoltaic cell comprising semiconductor layer (402), a sealing resin film (403), and a thermal insulation layer (404) (see Figure 12; and col. 18, lines 23-44). The sealing resin film along with frame (405) is a rectangular base member. The thermal insulation layer (404) corresponds to the instant insulating support member (see col. 18, lines 34-44). Ouchida et al's photovoltaic cell structure provides the advantage of suppressing photo-degradation and providing large output (see col. 4, lines 16-19). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used Ouchida et al's photovoltaic cell structure for the photovoltaic cell of JP '561 because Ouchida et al's photovoltaic cell structure

provides the advantage of suppressing photo-degradation and providing large output (see co. 4, lines 16-19). As seen in Figure 12, Ouchida et al's frame, which is also a bottomless and topless box, is adapted to receive said insulation layer (104), as per instant claim 22.

14. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP '561 in view of Ouchida et al as applied to claims 1, 4, 5, 7, 21, and 22 above, and further in view of Nakazima et al (EP 1071139 A2).

JP '561 in view of Ouchida et al, as relied upon for the reasons recited above, teaches the limitations 23, the difference being that JP '561 in view of Ouchida et al does not specifically teach that the photovoltaic cell has a terminal box, and that the terminal box is inserted and mounted in an opening formed in the base member. However, the use of a base member that has an opening for inserting and mounting a terminal box for a photovoltaic cell is conventional in the art, as seen in Figure 1 of Nakazima et al, which has terminal box storage recess (3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the module structure of JP '561 in view of Ouchida et al so as to include an opening for inserting and mounting a terminal box for the photovoltaic cell because such is conventional in the art, as shown by Nakazima et al.

15. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP '561 in view of Ouchida et al as applied to claims 1, 4, 5, 7, 21, and 22 above, and further in view of JP 2000-174313, herein referred to as JP '313.

JP '561 in view of Ouchida et al, as relied upon for the reasons recited above, teaches the limitations 24, the difference being that JP '561 in view of Ouchida et al does not specifically teach that the insulating support member, i.e., said thermal insulation layer (404), prevents the base member, i.e., the frame, from being deformed when the frame receives the weight of a worker stepping on or laying the solar cell module. JP '313 teaches a solar cell module that enables a worker to stand on the module when the worker installs and fixes the module, wherein, as seen in Figures 8 and 9, the module has a supporter material (23) that permits large loading on the module (see also paragraph 0146). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the solar cell module of JP '561 in view of Ouchida et al with the support structure as taught by JP '313 because this would provide the solar cell module with support that permits large loading on the module, and that enables a worker to stand on the module when the worker installs and fixes the module, as taught by JP '313.

Response to Arguments

16. Applicant's arguments filed April 28, 2006 have been fully considered but they are not persuasive.

With respect to independent claim 1, Applicant argues that JP '561 does not disclose or suggest "a solar cell provided on an upper surface of the base member such that a lower surface of the solar cell is positioned above and is mounted on an upper surface of the base member". Applicant argues that in JP '561, "the tarpaulin 5 prevents wear of the top face (upper surface) section of cell frame 1", and that "[a]s

clearly shown in FIG. 2, the recess comprises fixed slot 3, which is formed below the upper surface of frame 1." However, these arguments are not deemed to be persuasive because the photovoltaic cell (2) of JP '561 is mounted such that a lower surface of photovoltaic cell (2) is positioned above and is mounted to "an upper surface" of said rectangular frame (see Figure 2). For example, reference sign (3B) in Figure 2 of JP '561 is an upper surface of the frame and the photovoltaic cell (2) is mounted such that a lower surface of photovoltaic cell (2) is positioned above and is mounted to said upper surface at (3B). Said reference sign (3B) in Figure 2 of JP '561 is an upper surface because it is at an upper portion of the frame. The term "upper surface" is a relative term, and in the absence of further distinguishing structure, this relative term does not lend to patentability. The term "upper surface" is broad and does not distinguish over JP '561.

With respect to independent claim 7, Applicant argues that JP '561 does not disclose or suggest "laying a separate waterproof member" and "said separate waterproof member comprises a rectangular box that opens at a lower portion thereof." However, this argument is not deemed to be persuasive because JP '561's waterproof member (7) reads on the instant waterproof member and is a "rectangular box that opens at a lower portion thereof" to the extent that (7b) is one wall, (7D) is another wall, and (7E) is another wall, and (C) is in the opening of the box. The word "lower" is relative, and thus, when JP '561's Figures 4 and 11 are viewed upside down, the opening of waterproof member (7) is at a lower portion thereof.

With respect to claim 13, Applicant points to JP '908's fastener (8) and argues that JP '908 does not disclose or suggest "wherein the fastening strips comprise a rectangular main part and at least two rising parts that extend from the main part from at least two sides of the main part." However, this argument is not deemed to be persuasive because JP '908's fastening strips (38) comprise a rectangular main part and the instant at least two rising parts that extend from the main part (see JP '908's Figure 12). Additionally, JP '908's fastening strips (8) can have a rectangular part and multiple rising parts as seen in the embodiment of Figure 17(a).

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Diamond whose telephone number is 571-272-1338. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alan Diamond
Primary Examiner
Art Unit 1753

Alan Diamond
July 9, 2006